



# Oregon

John A. Kitzhaber, MD, Governor

Department of Environmental Quality

Northwest Region Portland Office

2020 SW 4<sup>th</sup> Avenue, Suite 400

Portland, OR 97201-4987

(503) 229-5263

FAX (503) 229-6945

TTY (503) 229-5471

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October 10, 2012

Robert J. Wyatt  
NW Natural  
220 N.W. Second Avenue  
Portland, OR 97209

Subject: **Reply to NW Natural's August 31, 2012 Letter Re: Agreement to Construct Groundwater Source Control Extraction System and Performance Monitoring Network, NW Natural, Gasco Site**

Dear Mr. Wyatt:

The Oregon Department of Environmental Quality (DEQ) reviewed your letter dated August 31, 2012. The letter provides NW Natural's written acceptance or clarifications of specific items in DEQ's August 9, 2012 letter commenting on the Construction Design Report<sup>1</sup>. In addition, the letter summarizes NW Natural's understandings of an August 20, 2012 meeting and discussions regarding items that affect construction of the groundwater hydraulic control and containment (HC&C) system extraction wells and performance monitoring network. This letter replies to each of the items in NW Natural's letter and provides an update on their current status where appropriate.

### **Final Extraction Well Design Steps and Performance Monitoring Network Modifications**

The first item identified in NW Natural's August 31, 2012 letter corresponds to DEQ's statements and conditions communicated in the third bulleted item on page 1 of our August 9<sup>th</sup> letter. This bullet outlines the final extraction well design steps. DEQ acknowledges that NW Natural agrees with our statements made regarding the final design steps for the Alluvium water-bearing zone (WBZ) extraction wells. The current status of the final design steps are as follows:

- DEQ approved the designs of the remaining upper Alluvium WBZ extraction wells in an e-mail dated September 12, 2012.
- NW Natural submitted technical memorandums providing one of the two model-dependent final design steps (i.e., "minimum available drawdown" simulation) and supporting information in an e-mail dated September 14, 2012. DEQ provided comments on the technical memorandums in an e-mail sent October 4<sup>th</sup>. DEQ's questions on the modeling work and supporting documentation were further discussed with Anchor QEA, LLC (Anchor) during a conference call on October 5<sup>th</sup>. Anchor is currently preparing written explanations to address DEQ's questions.

### **Sealing Monitoring Well Sumps**

The next item identified in NW Natural's letter corresponds to the fourth bulleted item on pages 1 and 2 of DEQ's August 9<sup>th</sup> letter. DEQ acknowledges that NW Natural agrees to revise the performance monitoring network by incorporating the first four modifications in the list of five included under this

<sup>1</sup> Anchor QEA, LLC, 2012, "Revised Groundwater Source Control Construction Design Report, NW Natural Gasco Site," January (received January 31, 2012), a report prepared for NW Natural.

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bulleted item. The fifth item (i.e., sealing monitoring well sumps) was addressed subsequent to DEQ submitting the August 9<sup>th</sup> letter. As indicated in NW Natural's August 31<sup>st</sup> letter, the Oregon Water Resources Department (WRD) and DEQ accepted an approach for sealing the sumps of monitoring wells using bentonite chips not pre-packed bentonite sump seals. For clarification, WRD and DEQ accepted two approaches using bentonite chips. The preferred approach involves placing bentonite chips in the bottom of the borehole and allowing the chips to hydrate and soften, then gently pushing the monitoring well sump into the bentonite. The second approach to sealing monitoring well sumps is described in NW Natural's August 31<sup>st</sup> letter and is a contingency to be used if there is the potential to damage a well using the first method. DEQ understands from conversations with Anchor that the preferred method is being successfully used in the field.

### **TarGOST® Boring Near PW-11**

As indicated by DEQ's comments on page 6 of the August 9<sup>th</sup> letter, a TarGOST® boring at PW-11U is needed to complete Task 2 of the Baseline Monitoring Work Plan<sup>2</sup>. Consistent with the sequence for completing baseline TarGOST® borings, DEQ's August 9<sup>th</sup> letter communicated the expectation that the boring at PW-11U would be completed before the initial testing of the HC&C system is begun. During the August 20<sup>th</sup> meeting NW Natural agreed to complete the boring, but requested the work be done at a time when multiple TarGOST® borings are scheduled for completion (i.e., after initial HC&C system testing is complete). DEQ approved NW Natural's request. However, DEQ's approval was based on the understanding that NW Natural would actively coordinate with the TarGOST® technology provider and arrange for this individual boring to be completed in advance of HC&C system testing if an opportunity presented itself (e.g., the TarGOST® provider is conducting work in, or traveling through the area). The August 31<sup>st</sup> letter does not mention NW Natural's coordination with the technology provider, but DEQ is carrying this understanding forward.

### **Basis for Selecting HC&C System Operational Parameters and Performance Criteria**

NW Natural's understanding of this item is correct. DEQ's August 9<sup>th</sup> General Comment withheld approval for constructing the HC&C system until NW Natural provided additional information on how the operational parameters and performance criteria were going to be developed and selected. As indicated in your August 31<sup>st</sup> letter, during the August 20<sup>th</sup> meeting NW Natural proposed to resolve this comment while the HC&C system extraction wells are being constructed. DEQ accepted NW Natural's proposal.

The additional information DEQ is requesting involves NW Natural: 1) identifying potential sources of uncertainty associated with data collected during the initial HC&C system tests; and 2) discussing how the sources of uncertainty will be evaluated and addressed during the tests. DEQ provided a preliminary list of potential sources of uncertainty associated with the data to be collected during the initial HC&C system tests in an e-mail dated August 7, 2012. Given the results of initial testing will be used to develop and select the operational parameters and performance criteria for long-term operation of the HC&C system, DEQ considers the requested information to be essential for planning and preparing for the tests, and for the tests to be successful. NW Natural should be advised that initiation of HC&C system operations and performance tests is dependent on DEQ's review and approval of the requested information.

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<sup>2</sup> Anchor QEA, LLC, 2012, "Work Plan to Assess Baseline Groundwater Conditions, NW Natural Gasco Site, Portland, Oregon" dated January 31, 2012, a work plan prepared on behalf of NW Natural.



### **Securing and Stabilizing Extraction Wells**

NW Natural's understanding of the August 20<sup>th</sup> meeting discussions on this topic is correct. As indicated in your August 31<sup>st</sup> letter, DEQ's August 9<sup>th</sup> letter recommends that NW Natural build extraction wells so they are secure and stable during construction of source control measures (SCMs) and/or upland and in-water remedial actions. DEQ's uses the construction of extraction wells in an oversized large-diameter concrete column as an example of a stabilization method. During the August 20<sup>th</sup> meeting DEQ clarified that due to the potential presence of dense non-aqueous phase liquids (DNAPLs) at extraction well locations; the requirement to seal DNAPL zones using the approved bentonite/organoclay slurry mixture; and the lack of strength of bentonite compared to concrete, NW Natural should use external structural supports (e.g., tie-backs) for purposes of securing and stabilizing extraction wells. DEQ acknowledges NW Natural's agreement to use structural supports at extraction wells during construction of future SCMs and/or remedial actions as needed.

### **Other Items**

NW Natural's August 31<sup>st</sup> letter mentions that DEQ is not requiring the Construction Design Report to be revised and resubmitted. This is correct and the reasons for not requiring NW Natural to prepare a final version of the Construction Design Report are laid out in DEQ's August 9<sup>th</sup> letter. Although not mentioned in your letter, the August 9<sup>th</sup> letter also communicates DEQ's expectation that NW Natural will prepare a "construction completion report" documenting the actual completed construction of the HC&C system and performance monitoring network.

Besides discussing items that could affect construction of extraction wells and the performance monitoring network, the August 31<sup>st</sup> letter indicates that, "During the August 20<sup>th</sup> meeting, DEQ clarified that its approval for NW Natural to build the HC&C system and the performance monitoring network is conditioned only upon resolution of the specific items discussed and clarified in this letter." For clarification, DEQ understood from the August 20<sup>th</sup> meeting that NW Natural also requested our approval of the remaining lower Alluvium WBZ extraction wells (i.e., PW-1L, PW-2L, PW-4L, PW-5L, PW-6L, and PW-10L). DEQ understood the request was made primarily because; 1) these six lower Alluvium WBZ extraction wells had not previously been approved; and 2) approval would facilitate the project schedule as drilling and installation of the lower Alluvium WBZ extraction wells could proceed while the final design steps for the upper Alluvium WBZ extraction wells were being completed. DEQ approved the remaining lower Alluvium WBZ extraction wells during a meeting on September 17, 2012 (PW-4L, PW-5L, PW-6L) and by e-mails sent on September 24 (PW-10L) and September 26, 2012 (PW-1L and PW-2L). DEQ understands that drilling and installation of the first extraction well (PW-10L) began on October 8<sup>th</sup>.

In the second to the last paragraph of the August 31<sup>st</sup> letter, NW Natural indicates that, "By accepting the DEQ conditions stated above for construction of the HC&C system and the performance monitoring network, NW Natural is not agreeing to the remainder of the comments and statements in DEQ's August 9<sup>th</sup> letter." The letter further indicates that NW Natural will provide a "detailed response to the comments and statements in DEQ's August 9 letter, following which we can meet to discuss any issues on which we continue to disagree." Based on telephone and meeting discussions following our receipt of the August 31<sup>st</sup> letter, DEQ understands the comments and/or statements with which NW Natural might disagree are primarily related to the Fill WBZ interceptor trench. DEQ further understands NW Natural may also disagree with the technical details of a limited number of comments, but these disagreements do not influence finalizing the design and/or construction of the HC&C system and performance monitoring

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network. Based on this information, NW Natural and DEQ agreed during a meeting on September 20, 2012 to initiate discussions on the interceptor trench and potential disagreements on technical points at the monthly meeting scheduled for November 19, 2012.

Please feel free to contact me with questions regarding this letter.

Sincerely,



Dana Bayuk  
Project Manager  
Portland Harbor Section

Cc: Patty Dost, Pearl Legal Group  
John Edwards, Anchor  
Ben Hung, Anchor  
John Renda, Anchor  
Carl Stivers, Anchor  
Rob Ede, Hahn & Associates  
Myron Burr, Siltronic Corporation  
Alan Gladstone, Davis Rothwell Earle and Xochihua  
James Peale, Maul Foster & Alongi, Inc.  
Sean Sheldrake, EPA  
Lance Peterson, CDM  
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